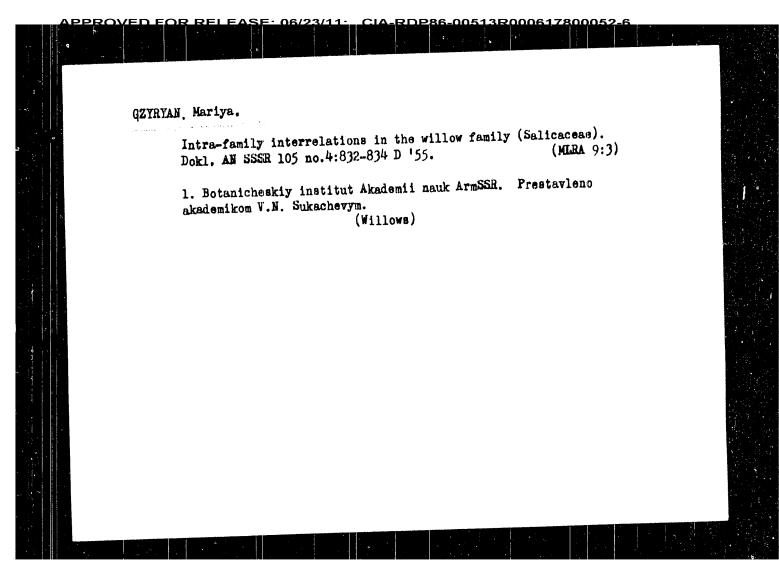


ARTYUSHENKO, Z.T.; VASIL'YEV, I.V.; GZYRYAN, M.S.; GOLOVACH, A.G.; GRUBOV, V.I.; ZAMYATNIN, B.N.; PIDOTTI, O.A.; PILIPENKO, F.S.; POLETIKO, O.M., kand.biolog.mauk; RODIONENKO, G.I.; RUSANOV, F.N.; SAAKOV. S.G.; SOKOLOV, S.Ya., prof., doktor biolog.mauk, red.; FEDOROV, Al.A.; SHIPCHINSKIY, N.V. [deceased]; SHUL'GINA, V.V.; SHUKHOBODSKIY, B.A.: COLOVNIN, M.I., red. izd-va; KRUGLIKOVA, N.A., tekhn.red. [Trees and shrubs of the U.S.S.R.; wild, cultivated, and promising exotic trees and shruhs] Derevia i kustarniki SSSR; dikorastushchie, kul'tiviruemye i perspektivnye dlia introduktsii. Moskva. [Vol.4. Angiosperms: Leguminosae - Punicaceae] Pokrytosemennye: Semeistva (MIRA 11:12) bobovye-granatovye. 1958. 973 p. 1. AN SSSR. Botanicheskiy institut. (Trees) (Shrubs) (Angiosperms)



CIA-RDP86-00513R000617800052-6 GZYRYAN, M.S. YATSENKO-KHMBLEVSKIY, A.A.; VIKHROVA, V.Ye.; CEYRYAN M.S.; MOSKALEVA, V.Ye.; TAKHTADZHYAN, A.L., otvetstvennyy redaktor; SUVOROVA, L.D., tekhnicheskiy redaktor. [Principles and methods of investigating the structure of wood] Osnovy i metody anatomicheskogo issledovaniia drevesiny. Moskva, Izd-vo Akademii nauk SSSR, 1954. 337 p. [Microfilm] (MIRA 8:2) (Wood)

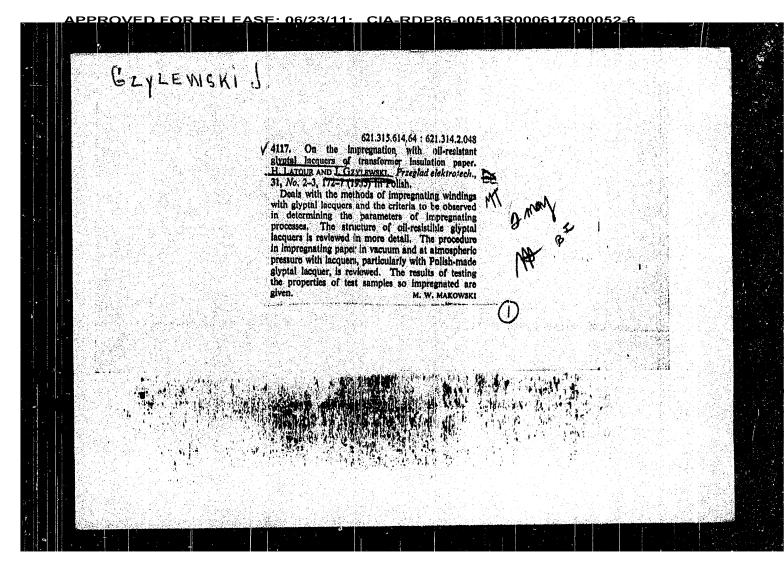
GZYRYAN, Mariya. Structure of the wood and bark of the apricot tree; materials for the anatomical and physiological study of the fruit trees of Armenia. Izv.An Arm.SSR.Biol.i sel'khoz.nauki. 5 no.8:71-82 '52. 1. Institut plodovodstva Akademii nauk Armyanskoy SSR. (Armenia--Apricot) (Wood) (Bark)

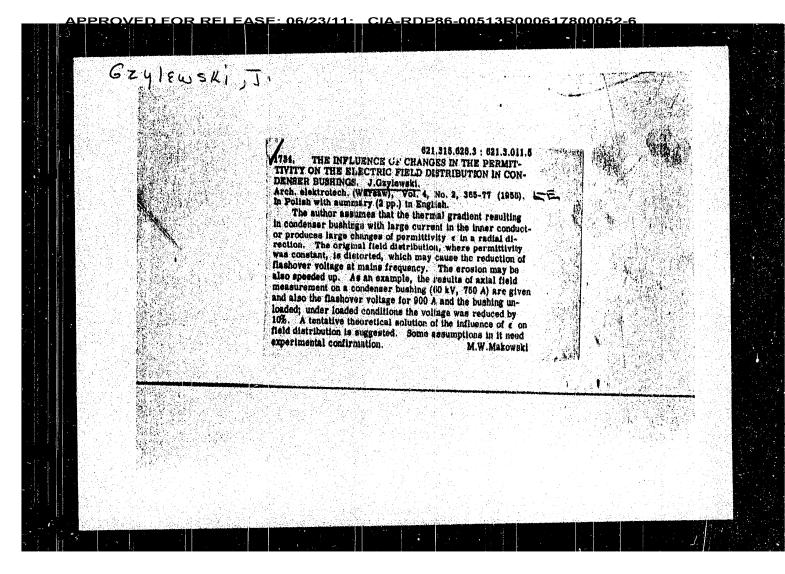
\$ 62'11465 ACCHSSION NRI AP5011791	and the second s
their properties, and methods for pulse generators even of a poler ing on a commercial scale, but it	dular shints for measuring steep pulse currents, testing them. The experimental data show that of about 2 km are suitable for plastic metal formation good pulse capacitors and trigger spirk-gaps problems must be solved before the generators can his: 6 formulas, 15 figures, and 1 table.
ASSOCIATION: Gzylevski, Las, Malor of High Voltage, LD I Hednarski Warszawskiej (Department for Tes Thailtute)	ewski - Zaklad Wysokich Napleo IEI (Department - Kaklad Technologii Mechanicznej Ogolnej Pola Buslogy of General Mechanics, Warsaw Polytechnic
SIBNITYTED FOO	encl: 00 sub codi: 101, 122
NR DEF SOVE 003	OTHER: OO
Card 2/2	

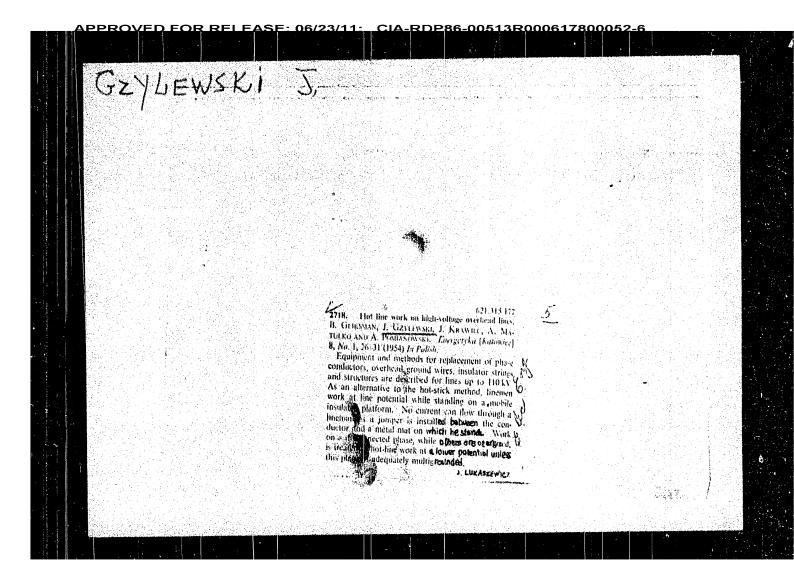
L (27th-65 PMP(E)/DM(E)/EMAC)/EPUD)/EMACD/EPUL) LIP(c) JD/HI TO/OS21/65/OXC/OD2/G121/G125 3/2

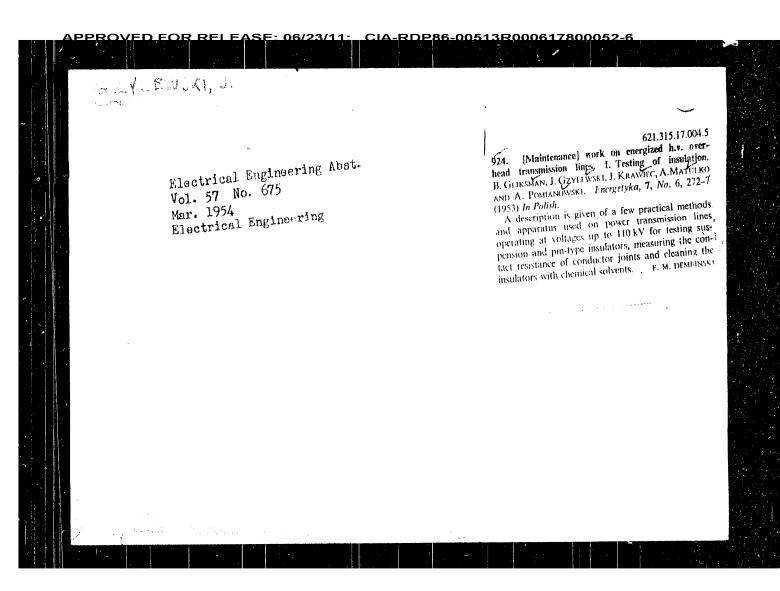
AUTHORS (Giylevist, I (Master engineer); Las. T. (Master engineer); Malayski, Rr (Master engine

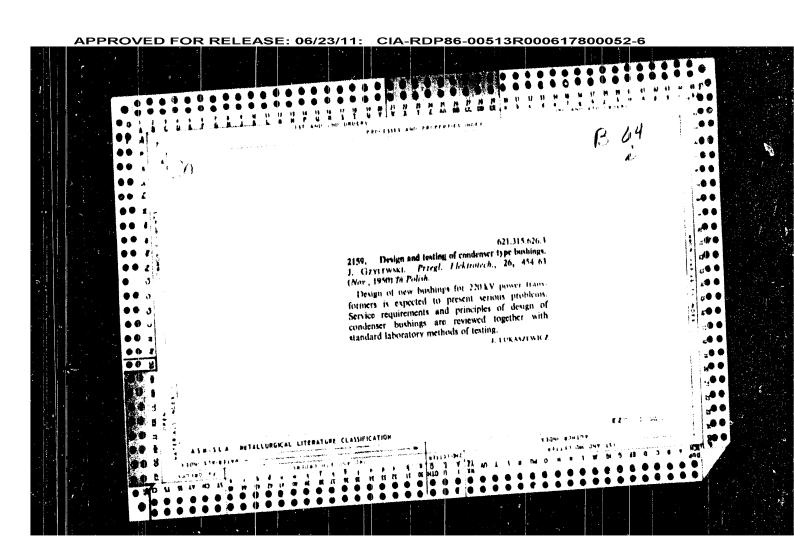
: POLAND COUNTRY Chemical Technology. Chemical Products and Their CAPEGORY Applications. Cellulose and Its Derivatives. Paper : RZhKhim., No 17, 1959, No. 63076 ABS. JOUR. Gzylewski, J.; Winczakiewicz, A. ROPTUA INSTITUTE : Electrotechnical Prescoahn TITLE : Przegl. paniern., 1959, 15, Nol, 12-16 ORIG. PUB. Presented are requirements for electrochemical ABSTRACT Prouspaim (mechanical, physical, chemical, and electrical properties.). Characteristics of Prosspahn made in the GDR, Sweden and Switzerland are compared. Described is the presentday condition of Presspahn production in the Polish Democratic Republic. From the author's resume. Card: H - 153

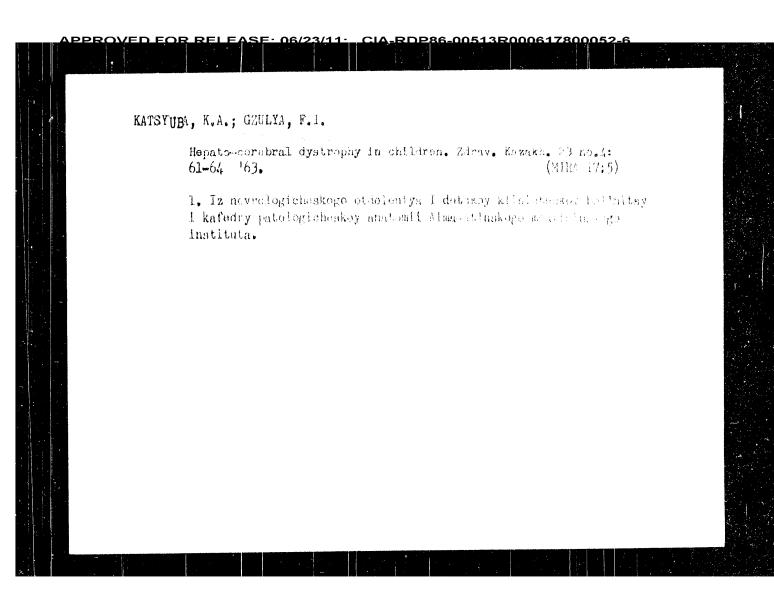


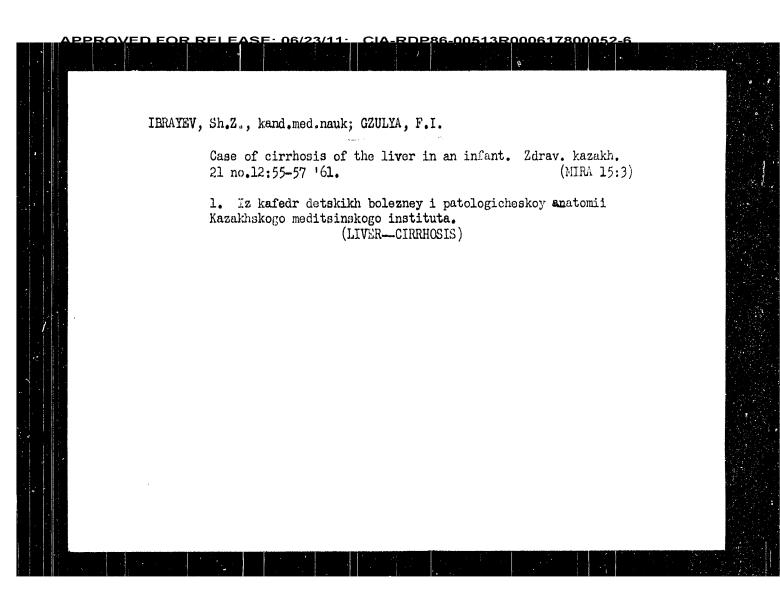






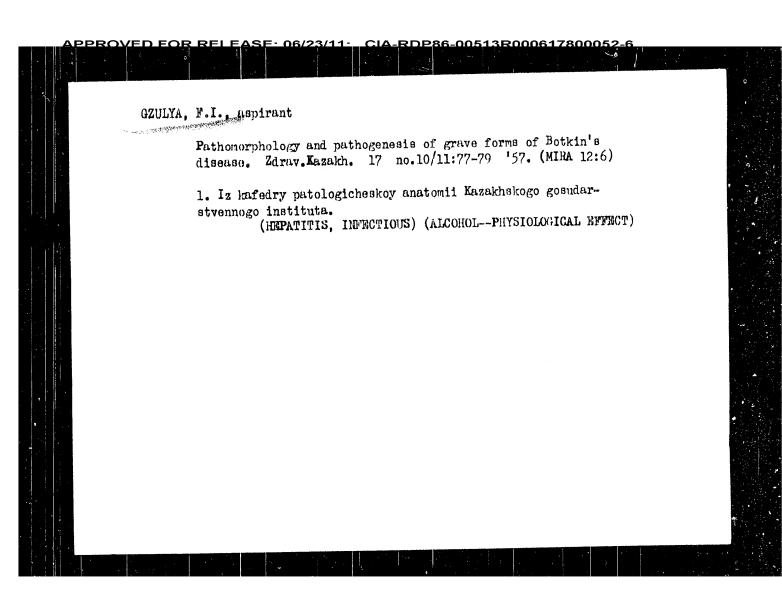


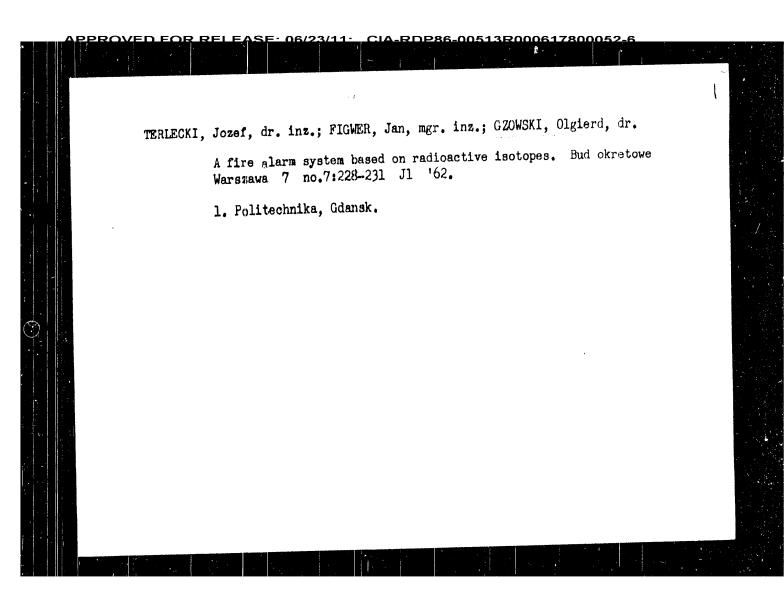


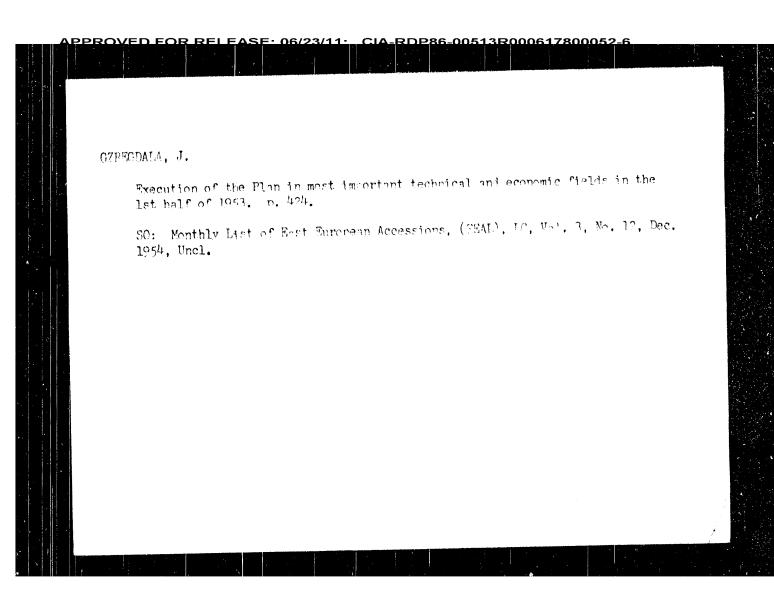


IBRAYEV, Sh.Z., kand.med, nauk; GZULYA, F.I. Case of typhoid fever in a child of 4 months. Zdrav. Kazakh. 21 (MIRA 14:4) no. 4:79-81 161. 1. Iz kafedr detskikh bolezney i patologicheskoy anatomii Kazakhskogo meditsinskogo instituta. (TYPHOID FEVER)

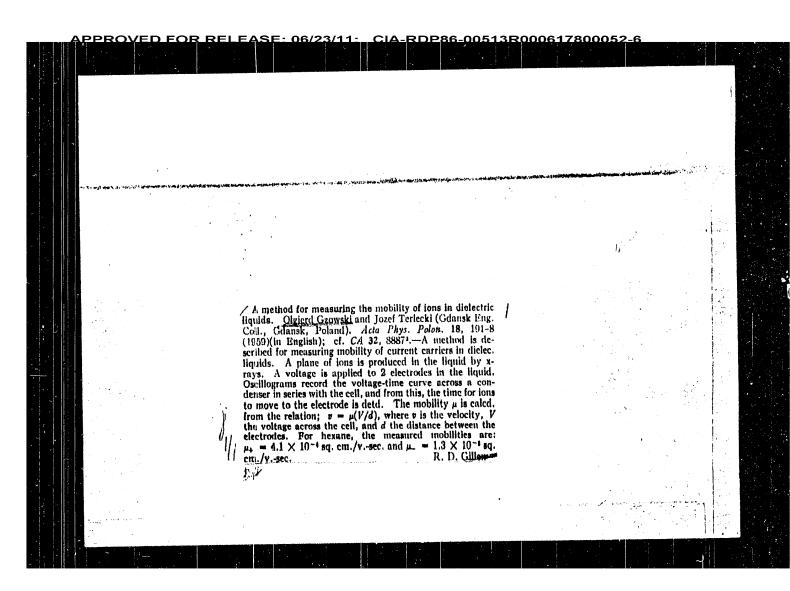
SHAKIMOVA, B.Sh.; GZULYA, F.I. Itsenko-Gushing disease with pluriglandular insufficiency. Zdrav. (MIRA 14:3) Kazakh. 21 no.2:28-32 '61. 1. Iz kafedry gospital noy terapii (aav. - dotsent R.A.Satpayeva) i kafedry patologicheskoy anatomii (zav. - professor P.P.Ochkur) Kazakhskogo meditsinskogo instituta. (DEFICIENCY DISEASES) (CUSHING SYNDROME) (ENDOCRINE GLANDS)

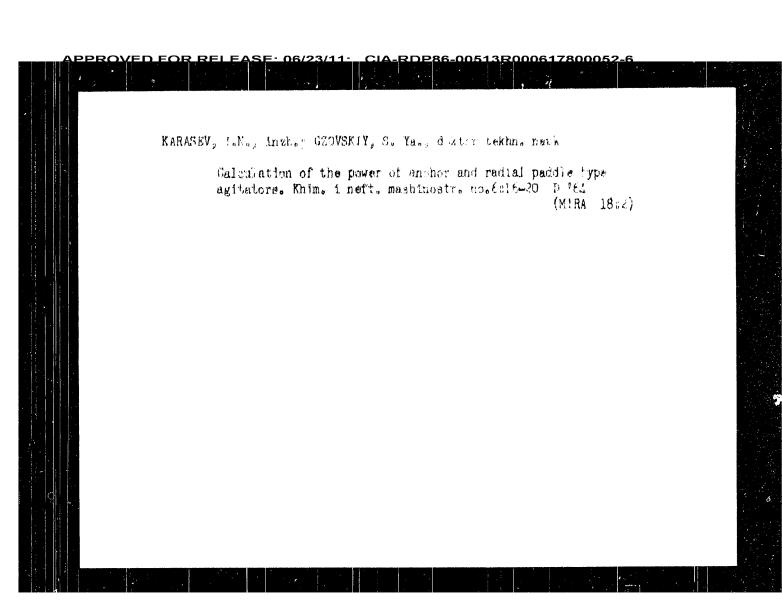


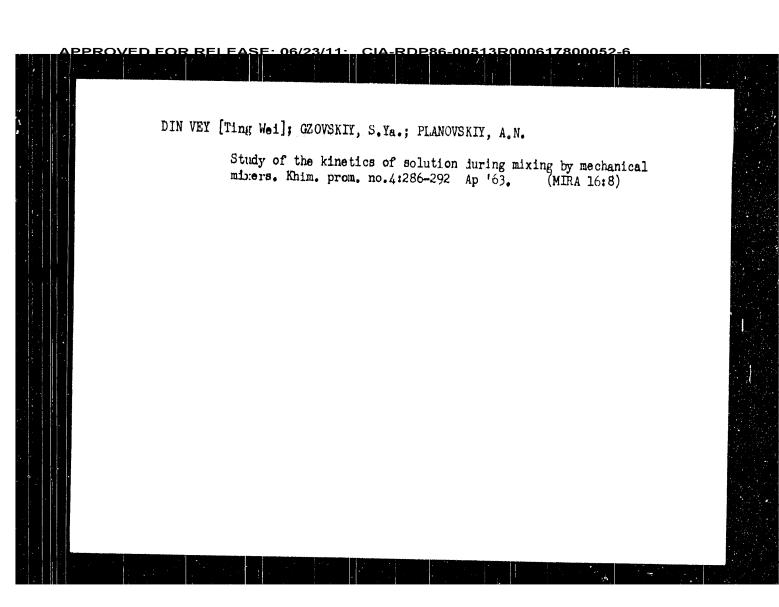


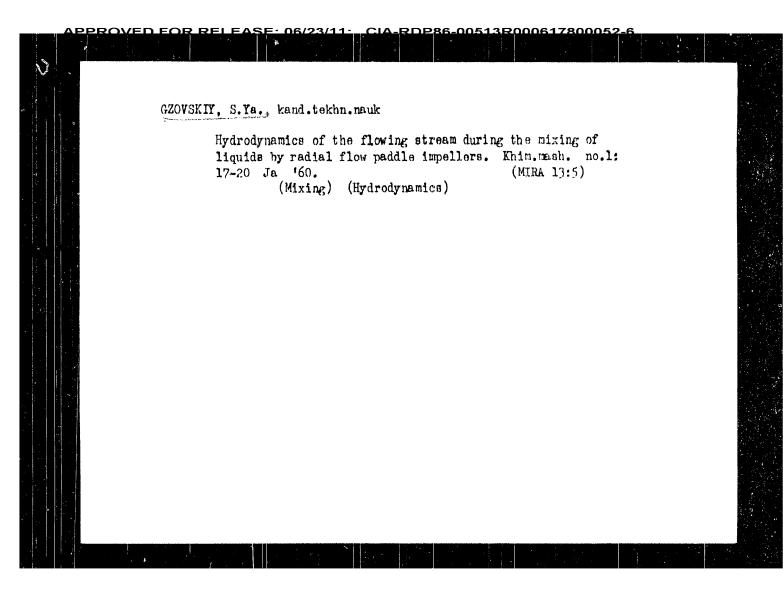


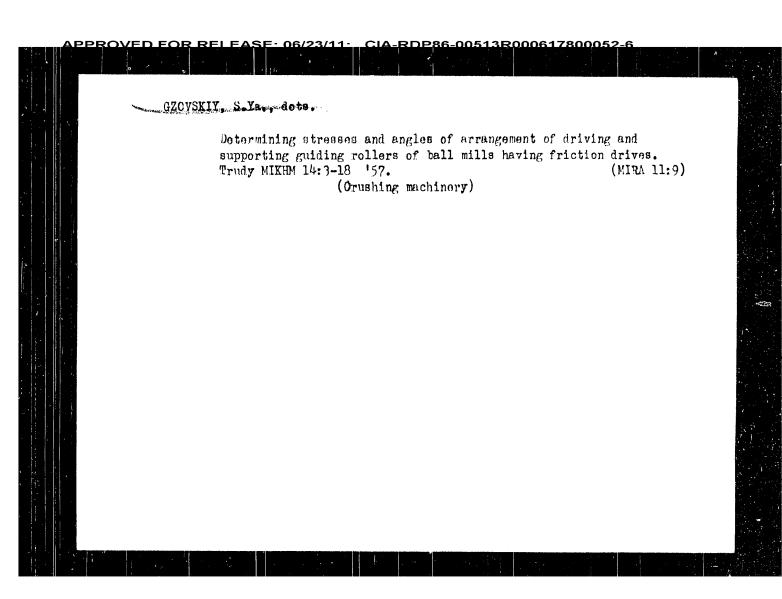
GZOWSKI, J. Complaints and grievances. p. 3. ROLUTK SPOKDZIELCA. (Centrala Rolniczej Społkzielni "Sampopomoc Chlopska") Warszawa, Poland. Vol. 8, no. 43, Oct. 1955. Monthly list of East European Accessions (EEAI) LC, VOL. 9, no. 2, Feb. 1960 Uncl.

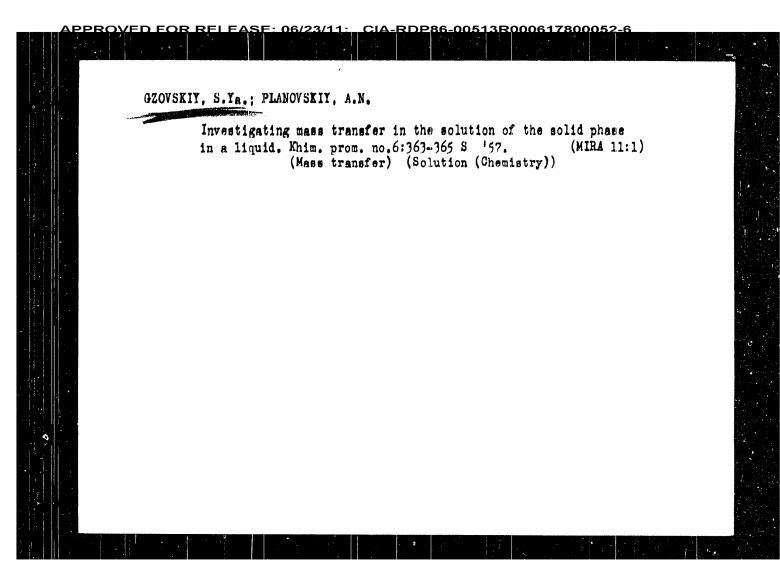






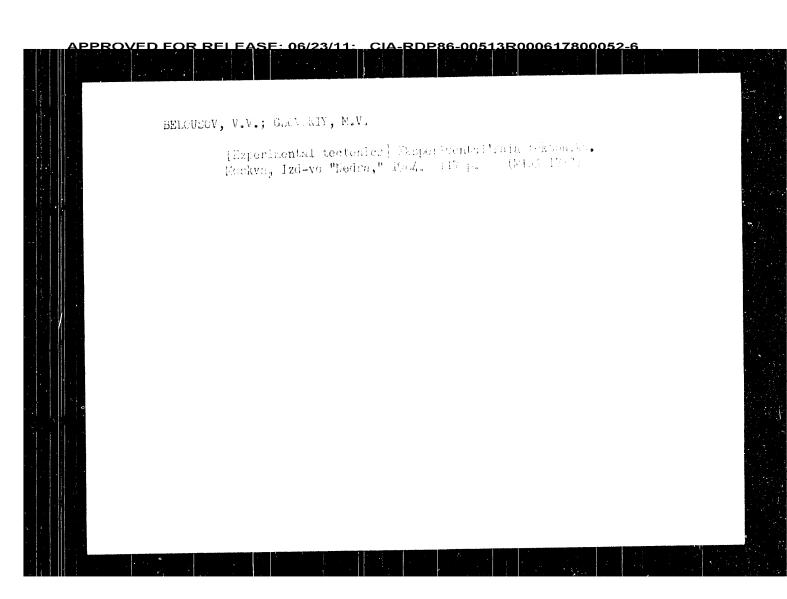






GZOVSKIY, S.Ya., kand, tekhn. nauk Kinematics of the stream during the mixing of the liquid by radial blade impellers. Khim. mash. no.6:13-20 N-D '59.

(MIRA 13:3) (Mixing) (Hydrodynamics)



L 17585-65

ACCESSION NR: AT4049225

spatial distribution of earthquake foci, etc. The uplift rate of the latest movements within the territory of the SSSR is only 0.25 mm/year (as an average over a 30-million year period). The lapse rate distribution of the latest vertical movements in the SSSR as a whole appears to conform to the seismic zoning maps and earthquake epicenter maps compiled by the AN SSSR. The majority of the contemporary abyssal fracture zones are steeply inclined (60-70% and more), extending much deeper than the base of the earth's crust. [nasmuch as the earth's crust is 90% isostatic, it is assumed that the convergence rate of the uplift and subsidence of the earth's crust is at least the same as the highest lapse rate of the movement component. A comparison of tectoric movements with magmatic processes reveals that the relationship between them is paragenetic and not merely causative. The currently known geological and geophysical facts support the hypothesis that the physicochemical transformation of matter in the upper mantle of the earth is the major cause of tectonic movements. The average uplift rate of the earth's crust must be related to the growing crustal thickness produced by the adhesion of increasing quantities of acid igneous rock to the crust. Orig. art. has: || | numbered formulas, 6 figures and one table.

ASSOCIATION: none

SUBMITTED: 25Mar64

ENCL: 00

SUB CODE: ES

NO REF SOV:

OTHER: 015

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MIK/OW

ACCESSION NR: AT4049225

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AUTHOR: GZOVSKIY, M. V.

B+1

TITLE: A tectonophysical comparison of recent tectonic movements with the seismicity, gravitational anomalles, magmatism and deep processes within the limits of the SSSR

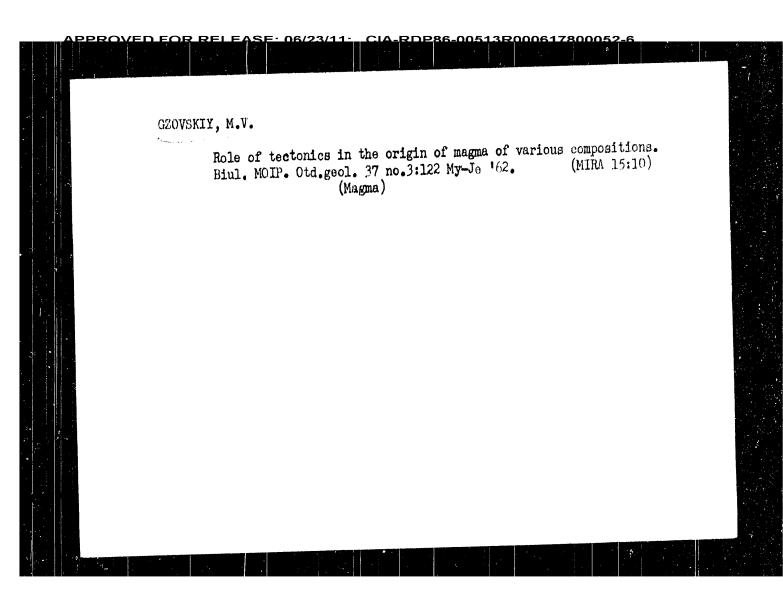
SOURCE: Vsesoyuznoya tektonicheskoya soveshchaniye. 2d, Dushanbe, 1962. Aktivizirovannywye zonyw zemnoy koryw, noveyshiye tektonicheskiye dvizheniya l seysmichnost! (Activated zones of the earth's crust, latest tectonic movements and seismicity); materialy: soveshchaniya. Moscow, Izd-vo Nauka, 1964, 58-77

TOPIC TAGS: Neogene-Quaternary movement, tectonophysical movement, isostatic movement, antilsostatic movement, earthquake focus, land uplift rate, earthquake frequency, subcrustel process

ABSTRACT: An attempt has been made to prove that the solution of various engineering problems, such is the prediction of the force and frequency of earthquakes in a particular area, should be based on the physical interpretation of tectonic movements. The following comparisons are discussed in this connection: the direction of the geological movements with the results of abyssal seismic soundings, the vertical and holizontal speeds of such movements, the lapse rate and the Card 1/2

GZOVSKIY, Mikhail Vladimirovich; BELOUSOV, V.V., otv. red.; KOLOSHINA, T.V., red. izd-va; ASTAF'YEVA, G.A., tekhn. red. [Basic problems in the tectonophysics and tectonics of the Baydzhansay anticline] Osnovnye voprosy tektonofiziki i tektonika Baidzhanskaiskogo antiklinoriia. Moskva, Izd-vo AN SSSR. Pts.3-4. 1963。 543 p。 1. Chlen-korrespondent AN SSSR (for Belousov). (Karatau-Geology, Structural)

OSOKINA, Doriana Nikolayevna; OZOVSKIY, M.V., otv. red.; MILLER, Yu.G., red.; MEDER, V.M., red. izd-va; KYLINA, Yu.V., tekhn. red. [Plastic and elastic low-module optically-active materials for studying stresses in the earth's crust by the modeling method] Flastichnye i uprugie nizkomodul'nye opticheskiaktivnye materialy dlia issledovaniia napriazhenii v zemnoi kore metodom modelirovaniia. Moskva, Izd-vo AN SSSR, (MIRA 17:1) 1963. 195 p.



S/169/63/000/003/033/042 D263/D307 Problems of magmatism ... ical reactions, proceeding in the subcrustal layer, although in some cases formation and eruption of magma causes corresponding sagging or rise of the Earth's surface. It is concluded that a definite combination of physical and chemical conditions is necessary for the formation of magma; tectonic movements play an important but not a critical part. (99 references).

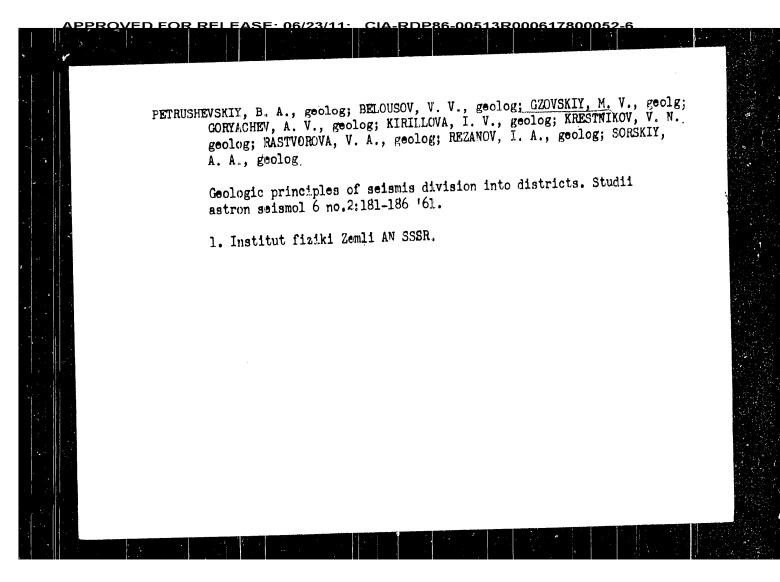
[Abstracter's note: Complete translation] Card 2/2

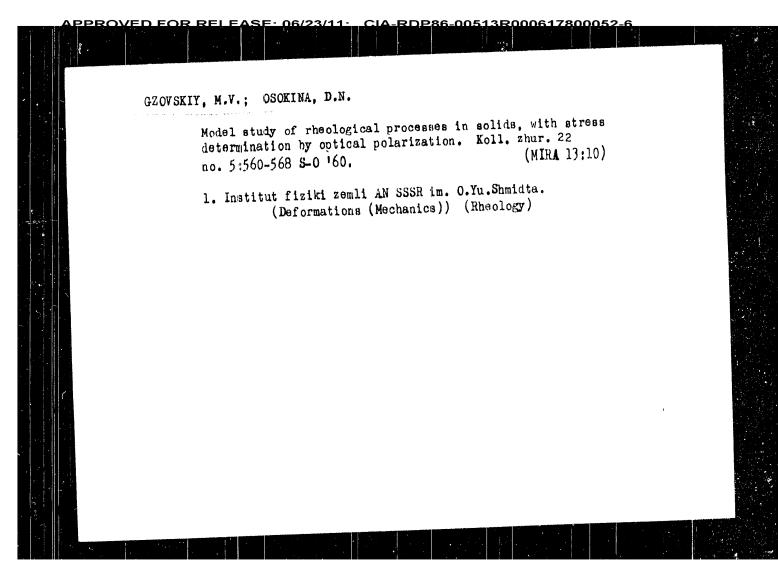
Gzovskiy, M.V. Problems of magmatism and tectonic physics AUTHOR: Referativnyy zhurnal, Geofizika, no. 3, 1963, 3, TITLE: abstract 367 (In collection: Vopr. Vulkanizma, II., PERIODICAL: AN SSSR, 1962, 297-318) A discussion is given of the tectonic conditions of the formation of magma, considering from tectonic data the causes of the change of all-round pressure, examining the combination of mag-matism with tectonic movements and estimating the part of the lowering of surrounding pressure during the formation of various magmas. A theoretically derived tectonic equation showed that for most basic magmas the lowering of surrounding pressure is the main factor in their formation while in most cases of acid magmas this factor plays a secondary part. Analysis of existing material indicates a frequent paragenetic connection between tectonic movements and formation of magma. Most tectonic motions are related to deep physical and chem-

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Card 1/2





Investigation of the Processes of Plastic S/069/60/022/004/004/005/XX Deformation by Means of Ethylcellulese Solutions and Gels and Optical Polarization S/069/60/022/004/004/005/XX

the birefringence (An) both on the shear stress as also on the deformation rate. The solutions containing dibutylphthalate acquired plastical consistence with an increase in the dibutylphthalate content. The aforementioned dependences are, in this case, not linear but exponential. The coefficient of optical activity  $V_{\Gamma}$  ( $V_{\tau} = \Lambda \eta/r$ ; An - amount of the double refraction of light,  $\tau$  - shear stress) is in the case of 10 to 35% ethyl cellulose solutions practically independent of the concentration, and is between 5-7.10<sup>4</sup> Brewster,  $V_{\Gamma}$  decreases with an increasing dibutylphthalate

content in the mixture, as well as with decreasing temperature. Among others, a paper by G. V. Vinogradov and V. N. Manin is mentioned. There are 5 figures, 1 table, and 13 references: 11 Soviet, 1 US, and 1 German

ASSOCIATION: Institut fiziki emli im O. Yu. Shmidta Moskva (Institute of Geophysics imeni O. Yu. Shmidt, Moscow)

SUBMITTED: April 19, 1959

Card 3/3

85707

Investigation of the Processes of Plastic Deformation by Means of Ethylcellulose Solutions and Gels and Optical Polarization

s/069/60/022/004/004/005/XX воо 5/во56

ically shown in Fig. 1 and described in detail in the original paper contains, among other things, a KCP-57 polariscope (KSP-5), as well as a tains, among other things, a KCP-57 polariscope (KSP-5). Berek compensator for measuring the optical effect. The dependence of shear stress on deformation as well as the deformation-kinetic diagrams were ascertained with the help of Pavlov's elastoplastoviscosimeter (Ref. 14). The material used was Soviet ethylcellulose of the type K-290 (K-290) with a molecular weight of  $7.7 \cdot 10^4$  and a substitution degree of 46.25%. The viscosity of a 5% alcohol benzene solution was .290 centipolse at 20°C. The ethyl cellulose was used in a dissolved state in benzyl

alcohol (of different concentrations) and/or in benzyl alcohol dibutylphthalate mixtures (whose mixing ratio was varied in a 30% concentration) The measured results are shown in the diagrams of Figs 2.5. The modulus of shear of the ethyl cellulose solutions was between 0.01 and 1 kg/cm<sup>2</sup>, the viscosity between 10<sup>2</sup> and 10<sup>7</sup> poise Owing to their mechanical properties, the solutions in benzyl alcohol corresponded to highly viscous Newton liquids having a completely linear dependence of

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s/069/60/022/004/004/005/XX BO03/B056

AUTHORS:

Osokina, D. W., Gzovskiy, M. V., Vinogradov, G. V., and Pavlov, V. P.

TITLE:

Investigation of the Processes of Plastic Deformation by

Means of Ethylcellulose Solutions and Gels and Optical

Polarization

Kolloidnyy zhurnal, 1960, Vol. 22, No. 4, pp. 434-442 PERIODICAL:

TEXT: The investigations described in the present paper deal with the problem as to whether it is, in principle, possible to study shear stress and rate of deformation in plastically deformable soft bodies by the method of optical polarization. The results obtained may be usefully applied in the mechanics of disperse systems, of tectonic physics, etc. The measurements were carried out in a device designed by V P Pavlov (Ref 13) and constructed by the Institut fiziki Zemli AN SSSR (Institute of Geophysics of the AS USSR), which simultaneously fulfilled the function of a plastoviscosimeter and a dynamooptimeter The device schemat-

Card 1/3

GZOVSKIY. M.V.; KRESTNIKOV, V.N.; LEDNOV, N.N.; REZANOV, I.A.; REYSNER, G.I. Map of recent tectonic movements in Central Asia. Izv. AN SSSR. Ser. (MIRA 13:8) geofiz. no.8:1168-1172 Ag '60. 1. Akademiya nauk SSSR, Institut fiziki Zemli. (Soviet Central Asia--Geology, Structural---Maps)

69680 Polymeric Materials With Different Physicomechanical Characteristics for Stress Investigations by the S/153/60/003/01/047/058 B011/B005 Optical Method April 10, 1959 SUBMITTED: Card 4/4

Polymeric Materials With Different Physicomechanical Characteristics for Stress Investigations by the Optical Method

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obtained by changing the acid - alcohol ratio, adjusting the thermal treatment, and using plasticizers. Previously (Ref 5) the authorshad produced an optically active, solid, elastic material "epoksiftamal" from the epoxide resin E-40. In the present paper, the amount of hardening agent was reduced to 3-5%. The resin became jellylike but remained brittle. At a content of 2-5% of maleic anhydride and 30% of dibutyl phthalate, an optically active, highly viscous liquid without a noticeable yield point was formed. At 5-22% of dibutyl phthalate, the resin has the maximum shearing stress By combination of epoxide resin with hardening agent and plasticizer, it is possible to produce optically active substances with manifold physicomechanical properties: from elastic bodies to viscous liquids. There are 1 figure and 5 Soviet references.

ASSOCIATION:

Moskovskiy institut khimicheskogo mashinostroyeniya; Kafedra

fizioheskoy khimii

(Moscow Institute for the Construction of Chemical Machines;

Chair of Physical Chemistry)

Card 3/4

Polymeric Materials With Different Physicomechanical Characteristics for Stress Investigations by the Optical Method

S/153/60/003/01/047/058 B011/B005

69680

and an excess of diethylene glycol (according to Ref 3). It was proven that the maximum amount of sebacic acid must not exceed that of maleic acid (1:1), or the product would become opaque. Benzoyl peroxide (0.1 - 1%) was added to the mixture. Polymerization was carried out at 20-40°. The polyester - styrene ratio was varied between 2:1 and 500:1. Optically active substances with

E =  $0.2 - 20 \text{ kg/cm}^2$  and a coefficient of optical activity  $B_\sigma$  = 100-1000 brewster  $(10^{-13} \text{ cm}^2/\text{dyn})$  were obtained with styrene at a ratio of sebacic and maleic acid in polyesters of 2:1, and acid : diethylene-glycol of 2:3. Even at a polyester styrene ratio of 1:500, they remained gelatinous. The figure (p 174) shows that both the modulus E and the optical activity of the polymer considerably increase with increasing styrene content. Modified glyphthal resins are condensation products of polyatomic alcohols (pentaerythrite, glycerin, diethylene glycol) with phthalic and maleic acid (Ref 4). They are called "gliftamal". They are suited for work at room temperature, having E =  $50,000 \text{ kg/cm}^2$  and  $B_\sigma$  = 36 brewster. Very transparent substances with  $\eta = 10^4 - 10^7$  poise, and  $B_\sigma = 2.10^3$  brewster can be

Card 2/4

5.3830

AUTHORS:

Shchegolevskaya, N. A., Osokina, D. N., Gzovskiy, M. V., Sokolov, S. I.

S/153/60/003/01/047/058

B011/B005

69660

TITLE:

Polymeric Materials With Different Physicomechanical Characteristics

for Stress Investigations by the Optical Method

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya

tekhnologiya, 1960, Vol 3, Nr 1, pp 172-175 (USSR)

TEXT: The authors proved the possibility of producing photoelastic substances with high optical activity and a wide range of elasticity moduli (up to gel-like substances of the gelatin-jelly type). These substances are produced on the basis of copolymers of unsaturated polyesters, of styrene, and of glyphthal band epoxide resins. These materials had manifold, given physicomechanical properties. The authors paid special attention to the production of plastics with a viscosity (η) of 10<sup>4</sup> - 10<sup>7</sup> poise, an elasticity modulus E = 10<sup>-1</sup> - 10<sup>1</sup> kg/cm<sup>2</sup>, and a high optical activity. Products of copolymerization of unsaturated esters and vinyl monomers have a reticular structure. Products with different optical and mechanical properties can be obtained by changing the number of chemical bonds between the molecules. For this purpose, saturated dicarboxylic acids (e.g. sebacic acid) are introduced besides unsaturated maleic acid, and the number of individual monomers (e.g. styrene) is varied. In contrast to previous papers, the authors investigated polyesters obtained with the use of reduced amounts of maleic acid

Card 1/4

\$/049/60/000/03/001/019 \$131/\$691

New Principles of Seismic Zoning Derived for Central Tyan'-Shan. II

As an example, the probability  $p \leqslant 0.001$  of occurrence of earthquakes (once or less in 1000 years) is suitable for the erection of less durable structures and  $p \leqslant 0.0001$  (once or less in 10000 years) for long-lasting structures. Determination of such a probability can be based on the above zoning charts and the nomogram given in Fig 6. Charts showing the regions of various probabilities of the occurrence of earthquakes, calculated for Central Tyan'-Shan, are given in Figs 7 and 8. There are 8 figures and 19 references, 17 of which are Soviet and 2 English.

ASSOCIATION: Akademiya nauk SSSR, institut fiziki zemli (Academy of Sciences USSR, Institute of Physics of the Earth)

SUBMITTED: July 9, 1959

Card 3/3

S/049/60/000/03/001/019 B131/B691

Grovski, V. M.V., Krestnikov, V.N., Nersesov, I.L. and Reysner, G.I.

New Principles of Seismic Zoning Berived for Central Tyan'-Shan. II AVITHORS:

TITLE: FERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geofisicheskaya, 1960, Nr 3,

pp 353-370 (USSR)

This is a continuation of work published in this journal, Nr 2, 1960. The investigation is based on the seismic zoning chart of the USSR (Ref 13). Only earthquakes of magnitude 9, corresponding to the energy E = 1015 J, were considered. The purpose of the investigations was to establish those areas considered to be the safest from the The method was based on point of view of engineering construction. the rate of tectonic movements as described by Grovskiy et al. (Ref 5). The map shown in Fig l was compiled on the basis of the results thus obtained. The method of seismic prognosis consisted of three separate

1) The territory was divided according to the gradients of tectonic

2) The zones thus determined were classified according to the movements. magnitude of the above rate.

card 1/3

ABSTRACT:

Modelling of tectonic processes

3/169/62/000/006/010/093 D228/D304

stresses. A similarity condition, illustrated by numerous graphs, is derived mathematically. The question of the extrapolation of laboratory data to notions about extremely long geologic processes, lusting for thousands and even millions of years, is considered. Conditions of similarity are deduced for the processes of plastic and clastic deformation and rupture formation, both statistical and inertial forces being thereby taken into account. The coefficients of viscosity are considered as functions of the temperature, the manifold pressure, and the tangential stress intensity, the coefficients of durability being regarded as time functions; the shearing strengths depend on the normal stresses. Besides the general conditions of similarity, allowance was also made in a speciric model for the boundary and the initial conditions. The practical feasibility of modelling is demonstrated. In addition to this a comparison is given for the mechanical properties of rocks and cautivident materials. The optical method of studying stresses in models is also examined. Examples are quoted for the use of models in solving geological and geophysical problems: 1) the formation mechanism for longitudinal flexure and lamination folds in the

Jard 2/3

S/169/62/000/006/010/093 B228/B304

AUTHUR:

Gzovskiy, M. V.

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Modelling of tectonic processes

Pharodicab:

Referativnyy zhurnal, Geoficika, no. 6, 1962, 9-10, abstract 6A58 (V sb. Probl. tektonofiziki, M., Gosegeoltekhizdat, 1960, 315-344)

The modelling of tectonic processes is based on the principles of: 1) the similarity of the models of natural objects;
2) the choice (the selectivity) of natural processes; 3) the separate study of different factors (of the separation) on models;
4) successive approaches (the approximation) to a natural object;
4) the statistical substantiation of deductions about the results of model tests. Proof is given for the possibility of modelling tectonic processes — the formation of folds, boudinage ruptures, and other macroscopic manifestations of crustal deformation and disintegration. Conditions of similarity are derived from differential or integral equations, describing the fields of tectonic

card 1/3

Physical theory of ...

\$/169/62/000/002/013/072 D228/D301

0.001 of the shear modulus of rocks. Hence elastic elengations and elastic shears in rocks are always less than 1% and 10 respection. tively. The author proposes a complex physical theory for tectonic fracture formation which contains 6 basic principles. 1) In each material two types of rupture -- tearing and shearing -- and their two corresponding strengths are possible. In each specific case rupture is determined by the character of the strain state and by the correlation between the material's tensile and shearing strengths. 2) The tenacity values do not remain constant but change in relation to the duration of the action, the manifold compression and the temperature. This principle is corroborated by numerous experiments and theoretical research. 3) The strengths of rocks may vary widely depending on their lithologic and petrographic peculiarities. 4) When studying the process of fracture formation it is necessary to take into account the influence of the selfemerging rupture surfaces on the strained state of their surrounding areas. In some areas a weakening of the stresses occurs, but in others they are streng thened. 5) The processes of rock rupture develop over a long period of time irregularly, together with plastic and

Card 2/3

Card 3/3

S/169/62/000/002/013/072 D228/D301

AUTHOR:

Gzovskiy, M. V.

TITLES

Physical theory of tectonic fracture formation

PERIODICAL:

Referativnyy zhurnal, Geofizika, no. 2, 1962. 10-11, abstract 2A68 (V sb. Probl. tektonofiziki, M., Gosgeti

tekhizdat, 1960, 78-96)

TEXT: The notion about the strain ellipscid finds a strict tectonic basis in the geometric consideration of any homogeneous deformation. The strain ellipscid can, therefore, be used to describe complete homogeneous deformation and also its plastic and elastic components. The method proposed by Becker for comparing fissures with the strain ellipscid does not always give accurate results. In the study of fissures and large tectonic fractures the author proposes the use of the complex of contemporary notions about the strengths of materials. It is noted that the nominal momentary tensile strengths of rocks is about 0.0001 of the modulus of elasticity, and that the nominal momentary shearing strengths are about

Card 1/3

Tectonic physics...

S/519/60/000/008/005/031 D051/D113

devoted to recommendations for the compilation of tectonic maps. The principles and methods of compiling standard tectonic maps are being developed by V.N. Krestnikov and G.I. Reysner using the Garmskiy rayon and other sections of Central Asia as examples. Soviet scientists V.V. Belousov, G.P. Gorshkov, A.V. Goryachev, I.Ye. Gubin, I.V. Kirillova, V.N. Krestnikov B.A. Petrushevskiy, I.A. Rezanov, and A.A. Sorskiy are mentioned for their efforts in developing seismotectonic maps at the Institut fiziki zemli AN USSR(Institute of Physics of the Earth, AS USSR), I.M. Kuznetsova and T.A. Tikhomirova - for having calculated, together with the author, certain geophysical coefficients belonging to the Usmay formula. There is I figure.

ASSOCIATION: Institut fiziki zemli AN SSSR (Institute of Physics of the Earth of the AS USSR)

Card 4/4

s/519/60/000/008/005/031 D051/D113

Tectonic physics...

times (m) the number of faults will decrease when their length is increased r times:

$$\lg m = 3\nu \quad \lg r; \quad \nu = \frac{\lg m}{3 \lg r} \quad . \tag{3}$$

The author further derived the formula

$$l_S l = \frac{1}{3} (l_S u_S - l_S L),$$
 (6)

where L is the coefficient of proportionality between the cube of the length of faults 1 and the energy of earthquakes US caused by them. It shows that for sections with uniform conditions for earthquakes, the logarithm of the length of faults causing the shocks is a linear function of the logarithm of the earthquake energy, if L can be determined for some earthquakes. The author also shows this dependence diagrammatically and proves that, on the basis of seismic data, the empirically established curve of recurrence and coefficient L permit the size of faults and the characteristics of their historical development to be evaluated. The remainder of the article is

Card 3/4

Tectonic physics...

S/519/60/000/008/005/031 D051/D113

of micro-earthquakes; (3) the location level of the rectilinear section of the carve, fixed by the recurrence of earthquakes of any definite energy (N,). The author considers that seismotectonic maps should basically show zones with different U of earthquakes with a definite focus depth. Within the zones, sections characterized by seismostatistical data and sections established as a result of extrapolation and interpolation according to geological features should be distinguished. The recurrence of earthquakes N must represent the second (superposed) sign. For U Smax, the author developed a formula which contains quantities (coefficient of proportionality between earthquake center volume and cube of fault extension, velocity gradient of tectonic movements, coefficients of viscosity and liberated energies, etc.) with peak values in each section, the total number of peak values determining the upper limit of earthquake energy. For some sactions, this limit is established seismostatistically, and for others, in which seismostatistical data are interpolated or extrapolated, the upper limit can remain unaltered or vary depending on constancy or change in the values of the quantities of the formula. The angular coefficient y of the rectilinear part of the curve of recurrence permits calculating how many

Card 2/4

<u> APPROVED FOR RELFASF: 06/23/11; \_CIA-RDP86-00513R000617800052-6</u>

s/519/60/000/008/005/031 D051/D113

AUTHOR:

Gzovskiy, M.V.

TITLE:

Tectonic physics and seismic zoning

SOURCE:

Akademiya nauk SSSR. Soviet po seysmologii. Byulleten, no.8, Moscow, 1960. Voprosy seysmicheskogo rayonirovaniya. 67-72

TEXT: The author discusses the character and compilation of seismotectonic maps, and shows how the parameters essential for compiling these maps can be determined. In the author's opinion, seismotectonic maps must separately define zones of present and possible future earthquakes differing in depth, energy, and recurrence. The total amount of seismostatistical data for each point or uniform zone can be most fully rendered by the main parameters of the logarithmic curve of recurrence of earthquakes of different energy. The main parameters of these curves, which were compiled by Yu.V. Riznichenko, I.L. Nersesov, and V.I. Bune for a number of Central Asian districts, are as follows: (1) the upper limit of earthquake energy (U<sub>Smax</sub>); (2) the angular coefficient v of the rectilinear section of the curve in the area

Card 1/4

## SOV/5096 Methods of Detailed Seismic Research 265 Internal structure of Mesozoic and Tertiary deposits 269 Form of the upper surface of Mesozoic and Tertiary deposits 270 General arrangement of the present structure of the region 274 3. Mechanism of the formation of the Alpine structure Structural results of change in direction of the movement 274 of tectoric zones 276 Indications of additional weak horizontal compression 276 Mechanism of fold formation 278 Formation of transverse faults 278 Form of tectonic zones Ch. 9. Seismicity of the Region and Its Comparison With the 279 Structural Goology 279 1. Map of epicenters 280 Method for drawing a map of epicenters General characteristics of the composite map of epicenters 282 283 Comparison of the epicenter maps for 1955 and 1956 286 Garm region 288 Stalinabad region Card-14/16

and a second	
Methods of Detailed Seismic Research	
	239
5. Seismic regime of the Stalinabad region	239
at 1 0 - Julianiaka Transpiki Cultvop	242
	~4~
Study of change in time of the seismic regime On the means for further investigation of the seismic regime	244
in the Stalinabad region	z.HH
Ch. 8. History of the Geological Development and the Present	247
Structure of the Garm Region	~~+ 1
a unit of Albine tectonic movements and the formation	247
the geological structure of the Garm region	249
Triassic and Jurassic	252
Cretaceous	253
Paleocene and Eocene	253 253
Oligocene and Neocene	256
Quaternary period	ک ر
	262
2. Present structure of the Garm region	26
T I T T T T T T T T T T T T T T T T T T	26
Form of the upper surface of Paleozoic formations	20,

Methods of Detailed Seismic Research

SOV/5096

foci, detailed methods for determining the structure of the earth's crust, some results of those determinations, methods of determining seismic energy on the basis of a series of criteria, analysis of dominant frequencies, the use of frequency-soloctive apparatus, a general description and analysis of seismic conditions in the Garm and Stalinabad areas, the geological structure of the Garm region and the history of its development; and a comparison of the spatial destribution of seismicity and the geological and tectonic structure of the area. The Foreword mentions Academician G. A. Gamburtsay [deceased] who laid the foundations for this work when he was director of the IKSE. The individual chapters of the book were written by a Introduction and Chapter 1 -- I. L. Nersesov and Yu. V. Riznichenko; Chapter 2 -- I. L. Nerressov, Chapter 3 -- I. L. Nersesov and T. C. Rautian; Chapter 4 -- T. C. Gautian; Chapter 5 -- K. K. Zapol\*skiy and V. I. Khalturin, Chapter 6 -- V. I. Keylts-Borok, L. N. Malinovskaya, G. I. Paylova, and V. I. Khalturin; Chapter 7 -- V. I. Bune, I. L. Nersesov and Yu. V. Riznichenko, Chapter 8 -- M. V. Gzovskiy, V. N. Krestnikov, and G. I. Reysner; Chapter 9 -- V. I. Bune, M. V. Gzovskiy and I. L. Nersesov. There are 272 references: 185 Soviet, 73 English, and 14 German.

Card 246

## PHASE I BOOK EXPLOITATION

SOV/5096

Bune, V. L., M. V. Gzerskir, K. K. Zapolískir, V. I. Keylis-Borok, V. N. Krestnikov, U. N. Malinovskaya, I. L. Nersesov, G. I. Pavlova, T. G. Pautian, G. I. Reysner, Yu. V. Riznichenko, and V. I. Khalturin

Metody detailing o isusteniya seyemichnosti (Methods of Detailed Seismic Research) Moscow, Isdavo AN SSSR, 1960, 327 p. No. of copies printed not given. (Sartes: Akademiya nauk SSSR. Institut fiziki zemli. Trudy, vyp. 9 [176])

Resp. Ed.: Yu. V Rizmichenko, Corresponding Member AS USSR; Ed. of Publishing House: S. I. Masarskiy, Tech. Ed.: O. G. Ul'yanova

PURPOSE: This book is intended for geophysicists, particularly seismologists.

COVERAGE: The book summarizes the principal results of the work of the TKSE Instituta (trik) result AN SSSR (Tadzhik Complex Seismological Expedition of the Institute of Physics of the Earth of the AS USSR) and the Institut seysmological AN Tadzhikskoy SSR (Institute of Seismology of the AS Tadzhik SSR) during the period 1955-1957. Among the topics discussed are: seismic apparatus used new methods for determining the coordinates of earthquake

Card 1/16

BELOUSOV, V.V., red.; GZOVSKIY, M.V., kand.geol.-miner.nauk, red.; KOLOSHINA, T.V., red.izd-va; GUROVA, O.A., tekhn.red. [Tectonophysics: transactions of the All-Union Conference on Tectonophysics] Problemy tektonofiziki; trudy Pervogo Vsesoluznogo tektonofizicheskogo soveshchaniia. Pod red. V.V. Belousova i M.V.Gzovskogo. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po geol. i okhrane nedr. 1960. 363 p. (MIRA 14:3) 1. Vsesoyuznoye tektonofizicheskoye soveshchaniye. lst, Moscow, 1957. 2. Chlen-korrespondent AN SSSR (for Belousov). (Geology, Structural) (Geophysics)

blustisisiono-opilobeski metod isaledovacije naprjezbenjy trudy konferentsii 19-21 ferralya 1976 goda (Optical Polarization Method (Stress Analysis; Transactions of the Conference of February 19-20), [Lantgrad] Isi-vo Leningradshogo univ., 1980, 451 p. Errata slip interfed. 2,400 copies printed. Loningrad. Baiversitet

Rep. Ed.: S.P. Skibbbelow; Ed.: Ye.V. Shibezelevn; Tech. Ed.: S.D. Vodolagins; Editorial Board: S.G. Outmon, L.M. Lahnor, Y.M. Krassov, T.D. Maisutovn, S.I. Prigorovskiy, V.M. Poshbo, E.S. Rouszov, and Te.I. Edel'shtoyn.

PREFOR: This collection of 50 articles is intended for scientifits and engineers concerned with experimental stress analysis of machine parts and structural components.

COVERAZE: The collection contains reports presented at the conference on optical palacitation methods in stress analysis build February 33 - 21, 1955, in Landagrad and strended by 304 delegates including representatives of the Prophe's Republic, the German Democratic Republic, Republic of Collegation and the People's Republic, the German Democratic Republic, and the Republic of Cosciosionatis. The reports discuss general theoretical

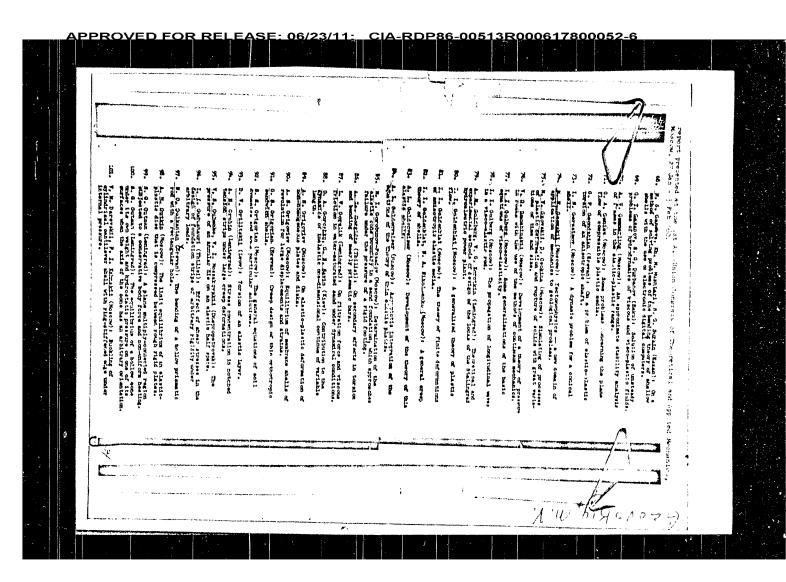
Optical Polarization Method (Cont.) problems and her methods of investigation and describe apparatus and autorials used in the optical method. Solutions of specific two-dimensional and direct dimensional problems occurring in antipolarity, sincert design, engine one extention, in various branches of heavy and president methods in attack, methods branches of the say and president methods, and the control of streams in products of the place and exclusion in the street, she form, see from the control of streams in products of the place and electronic industry, etc., are given, Solution of the three-dimensional problem by means of the method of procedurality is introduced at the use of this arbital for the method of procedurality is introduced at the use of this arbital for the method of proceduration. Reports protected year, apparent as the resident for the exports. No presentation and solutions. Reference was found at the end of N of the exports.

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GZOVSKIY, Mikhail Vladimirovich; BELOUSOV, V.V., otv.red.; FEDOT'YEV, K.M., red.izd-va; MAKUNI, Ye.M., tekhn.red. [Basic tasks in studying the formation dynamics and tectonics of the Baydzhansay anticline] Osnovnye voprosy tektonofiziki i tektonika Baidshansaiskogo antiklinoriia. Moskva, Izd-vo Akad.nauk SSSR. Pts. 1 and 2. 1959. 254 p. (MIRA 12:7) 1. Rukovoditel' otdela geodinamiki Instituta fiziki Zemli AN SSSR (for Belousov). (Kara Tau-Geology, Structural)

SOV/ 49 -58-12-1/17

Comparison between the Tectonics and Seismicity of Garmskiy Rayon of Tadzhik SSR. II.

are necessary for the different tectonic structures or for various depths of the earth crust. Therefore, the investigations in this matter are not yet concluded and the additional information will be presented at some future date. There are 3 tables, 8 figures and 28 references, of which 23 are Soviet, 3 are German (2 translated from Hungarian), and 2 are English.

ASSOCIATION: Akademiya nauk SSSR, Institut fiziki Zemli (Academy of Sciences, USSR, Institute of Physics of the Earth)

SUBMITTED: August 4, 1958.

Card 3/3

SOV/ 49 -58-12-1/17

Comparison between the Tectonics and Seismicity of Garmskiy Rayon of Tadzhik SSR. II.

seismic activity coincide with the banded structure, for which a mean gradient of tectonic movements in the Quaternary period was high (Figs.5 and 6). Therefore, it can be stated that the velocity of seismic activities increases with an increase of mean tectonic gradient. In order to verify this relation, a method was devised which could be applied to any region having seismic activity of short duration (2 to 3 years), provided weak earthquakes and the measurable gradients of tectonic movements are of recent origin. This method is based on the detailed analysis which showed that the correlation between the frequency of earthquakes (Fig:1) and the tectonic gradient, Fig.6, is maintained in various areas of the Garm region (Table 3, A7 - frequency). As the above relation was found

for one region only, it is possible that some modifications Card 2/3

307/49 -58-12-1/17

AUTHORS: Gzovskiy, M. V., Krestnikov, V. N., Nersesov, I. L., Reysner, G. I.

TITLE: Comparison between the Tectonics and Seismicity of Garmskiy
Rayon of Tadzhik SSR. II (Sopostavleniye tektoniki s seysmichnost'yu Garmskogo rayona Tadzhikskoy SSR. II)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya geofizicheskaya, 1958, Nr 12, pp 1425-1442 and 2 inserts (USSR)

1: It was observed that more than 9000 epicentres of the energy from 104 - 1013 j showed activity during 1955 and 1956 ABSTRACT: in Garmskly rayon of about 13 500 km<sup>2</sup> (Figs.2, 3 and 8). The earthquakes were registered in sufficient detail to give a complete picture of the seismicity of this region (Fig.1). This region, therefore, was chosen for the investigation on the relationship between seismicity and tectonic structure. A quantitative method of investigation was chosen so that the analysis of tectonics could be utilised in the determination of seismicity. The mean gradient of the velocity of vertical tectonic movements of the earth crust was calculated from Eqs.(1) and (2). Some results are shown in Figs.4, 5 and 7 and Tables 1 and 2. The cross-sections I-I and II-II employed in the calculations can be seen in Fig.6. The comparison showed that in Garmskiy rayon the areas of higher Card 1/3

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000617800052-6

Tectonic and Seismic Conditions of Garmskly Rayon in Tajik SSR There are 8 figures and 28 references, 25 of which are Soviet and 3 German. ASSOCIATION: Akademiya nauk SSSR Institut fiziki Zemli (Ac.Sc.USSR, Institute of Terrestrial Physics) August 28, 1957 SUBMITTED: 1. Geology--USSR Card 5/5

307/49-58-8-3/37

Tectonic and Seismic Conditions of Carmskiy Rayon in Tajik SSR

by both the strong, vertical forces and the weaker, horizontal shearing stresses, thus being subjected to a deformation which was of plastic character. This can be seen on the surfaces where the Palaexoic is found close to the Mesozoic rocks. Where this type of deformation occurred with great speed, the faults were formed. It could be said that all the blocks of Palaeozoic origin behaved not as rigid bodies but as a plastic medium with some parts of the Earth core being somewhatlof greater viscosity in relation to the Mesozoic and the Tertiary sedimentations.

The general character of the mechanism of formation of the alpine structure of the Garmskiy rayon could be also applied to the regions of Tajik depression (Figure 6). It can be assumed that the developments in the Garmskiy rayon took place during the second half of the Quaternary period and lasted about 120-230 thousand years which can be compared with 600 thousand years of the total time of the Quaternary period.

Card 4/5

307/49-58-8-3/17

Tectonic and Seismic Conditions of Garmsky Rayon in Tajik SSR

anticline, a series of faults developed, the depth of which is characterised by the long and narrow grabens filled with small rocks (Figure 1). These grabens could not be independent structures as those in other areas (Figure 7). It can be assumed that they are the remnants of the changed direction of the movements of neighbouring regions. Originally, a rise of one of the regions caused the formation of a fault. The faults, in turn, caused a break in the general movement of the area. Thus, at the boundary of two neighbouring tectonic regions, the faults can be found, usually at the narrow ridges (Figures 1 and 3). The formation of new faults in relation to the dislocations are explained by the faults being not vertical. They are mostly inclined towards its lifted side.

A noticeable feature is a very well-maintained range of the young faults and folds of Neogen-Quaternary origin. Their large number signifies a horizontally directed course of the tectonic regions. Also, it can be assumed from their general orientation that the shear effect was directed along the Meridian.

The Palaeozoic foundation of the Garmskiy rayon was effected Card3/5

Tectonic and Seismic Conditions of Garaskly Rayon in Tajik SSR

Some of the data given in the diagrams were interpolated from the places situated farther away (Figure 4) but it was assumed that the possibility of error could not affect the general character of the graphs.

A clear difference in the tectonic movements between the geosyncline and the plateau areas can be clearly distinguished in Figures 5 and 6.

The present structure (Figure 7) of the Garmskiy rayon and NE part of the Tajik depression is characterised by several divisions of which the most important is the alpine district of Pamir and Darvaz.

A main feature of the structure of the Garmskiy rayon is a vertical displacement of the isolated blocks separated by the tectonic faults which break through the Earth's core. The traces of these faults can be found even in the Palacozoic base. A change ocurred in their direction in comparison with that in the Neogen and Quaternay periods at the time when an inversion took place of the pre-Famir depression and when the region of the Kabudkrin rose above the surrounding areas.

Card2/5 At the same period in the worth-west of the Kabudkrim

SUV/49-53-9-3/17

AUTHORS: Gzovskiy, M.V., Krestnikov, V.N., Hersesov, I.L. and

Reyener, G.I.

TITLE: Tectonic and Seismic Conditions of Carmskiy Rayon in

Tajik SSR (Sopostavleniye tektonik) s seysmionusso yu

Carmskogo rayona Tadzhikakov BBR. I) Part I.

PERIODICAL: Izvestiya Akad mii Nauk SSSR, Seriya Geofizicheskaya,

1958, Nr 8, pp 959 - 976 + 2 plates (USSR)

ABSTRACT: A junction of the vest Asian mountain chains, Himalaya-

Pamir geosyndine and the Tlen-Shan Renge with the Tajik depression represents territory or very active seismic activities. Particularly, the Garmskiy rayon is known for its highest concentration of the epicentres (Figures 1)

and 5).

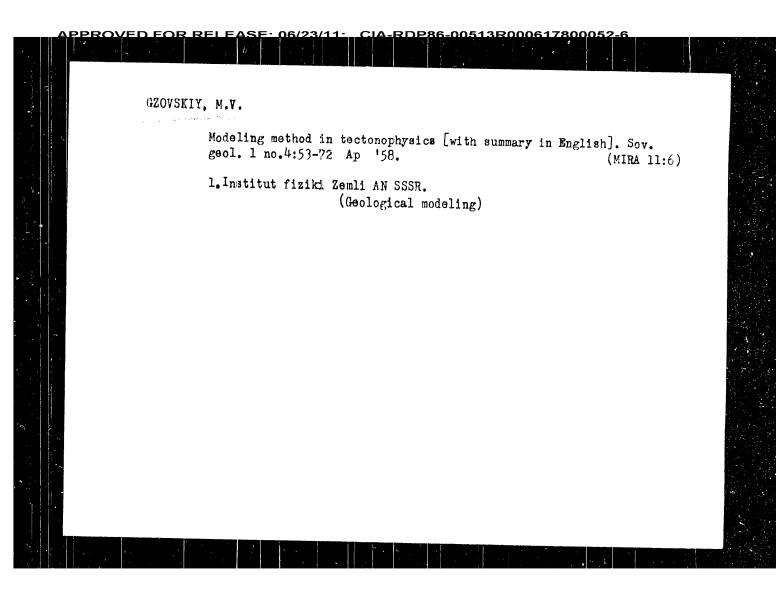
The history of its alpine, tectonic movements and the formation of its geological structure can be represented in the form of diagrams. The structural changes which were

undergone during the periods of the Mesozoic and the Kainozoic in the eastern part of the region along the

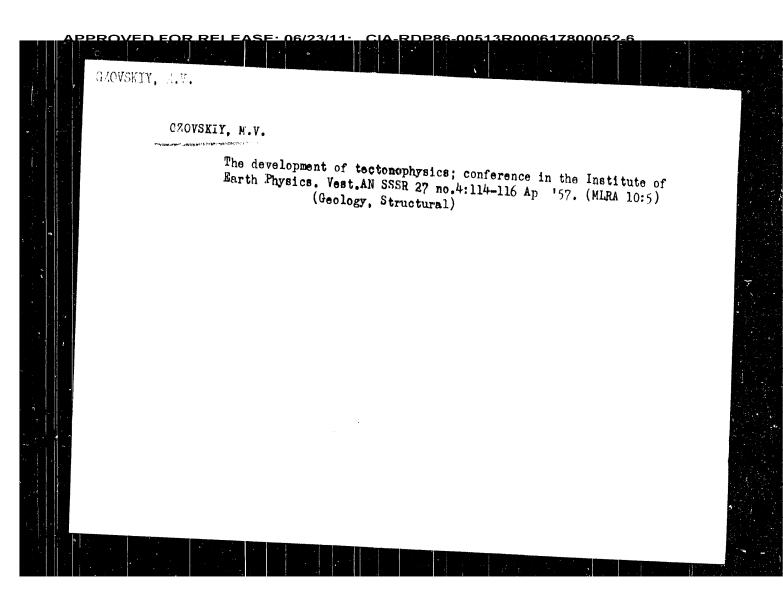
line NW-SE are shown in Figure 2, while Figure 3

represents the same cross-section running through Garm-

Coad1/5 skiy rayon.



GZOVSKIY,  $H,V_{\bullet}$ , kandidat geologo-mineralogicheskikh nauk. Problems in tectonophysics. Priroda 46 no.6:49-52 de 157. (MLRA 10:7) 1. Inatitut fiziki Zemli Akademii nauk SSSR (Mosbre). (Earth-Surface) (Geophysics)



P86-00513R000617800052 49-7-13/14 Conference on tectonophysics. (Cont.) to organize a permanent tectono-paysical seminary and the organization of such a seminary was entrusted to the Geodynamics Sections of the Institute of Physics of the Earth, Ac.Sc. AVAILABLE: Library of Congress Card 18/18

49-7-13/14

ores the mechanism and history of deformation of the investigated parts of the Earth's crust should be considered as one of the basic scientifically justified methods.

The problem of cleavage was extensively discussed by various authors. A. V. Pek, Novocherkassk Polytechnical Institute (Novocherkasskiy Politekhnicheskiy Institut) dealt with the method of microscopic investigation of the rock structure for elucidating the character of the investigated deformations (petrotectonic) and emphasized the practical importance of this method from the point of view of deciphering the structure of ore deposits in determining the displacements along large tectonic fractures and also in other cases. The various problems of the physical and mechanical study of tectonic deformation of rocks which are important from the point of view of engineering gedogy were considered by I. V. Popov, Laboratory of Hydrogeological Problems (Laboratoriya Gidrogeologicheskikh Problem AN SSSR). The problems of tectonophysical investigations relating to search for oil and gas with analysis of concrete examples were dealt with by Card 17/18 P. P. Ivanchuk, All Union Gas Research Institute (Vsesoyuznyy Nauchno-Issledovatel'skiy Institut Gaza). It was recommended

Conference on tectonophysics. (Cont.) outlined those practical problems, for the solution of which it is advisable to study the mechanism of formation of the structure of deposits of gold orcs. V. M. Kreyter, All Union Research Institute of Mineral Raw Materials (Vsesoyuznyy Institut Mineral'noto Syr'ya) formulated the problem of the influence of pressure from all sides on the character of the tectonic fractures and on the T. Z. Korin (Institute of Geology of Cre Deposits) demonstrated material indicating that the distribution of hypergenic deposits of iron, nickel and cobalt in the weathered crust depends to a large extent on the direction, density and character of the crack distribution and of the larger fractures in the basic rocks. A. A. Belitskiy, Tomsk Polytechnical Institute (Tomskiy Politekhnicheskiy Institut) characterizes the complicated crack structure of coal bearing deposits on the example of

49-7-13/14

the Kuzbas.
G. V. Charushine, East Siberian Branch of the Ac.Sc.
G. V. Charushine, East Siberian Branch of the Ac.Sc.
Card 15/18 (Vostochno-Sibirskiy Filial AN SSSR) analysed the method of studying fractures in shallow sedimentary rocks on the sample of the South Siberian platform, mentioning that in

is inadequate and in some cases doubtful; in prospecting for

49-7-13/14 Conference on tectonophysics. (Cont.) folds and fractures which developed in recent periods, on the example of the ridges of Karatau in Southern V. I. Keylis-Borok (Institute of Physics of the Earth) described the method which he developed for determining the elements of location of fractures in the depths which bring about earthquakes and elucidated the direction of displacement of their extremities. emphasized the importance of the extensive study of the deformation of the Earth's crust within individual large regions carried out by the Geodynamics Section of the Institute of Physics of the Earth. A number of papers were devoted to methods and tasks of detailed investigation M. V. Gzovskiy proved the inconsistency of the hypothesis of G. Becker which is widely used by geologists for interpreting the fracture tectonics; he recommended use of a complex of modern conceptions on the strength of materials which would permit to re-establish the basic features of the tectonic stress field acting during the time of formation of the cracks.

card 13/18 time of formation of one oracles.

I. P. Kushnarev and L. I. Lukin, Institute of Geology of Ore Deposits (Institut Geologic Mestorogudency AN SSSR)

Gold Geological Prospecting Institute (Vsesoyuznyy Nauchno-Card 14/18 Issledcvatel'skiy Geologo-Razvedochnyy Institut Zolota)

49-7-13/14 Conference on tectonophysics. (Cont.) The mechanism of formation of large structural elements of the Earth's crust was dealt with by the following V. V. Belousov (Institute of Physics of the Earth) mentioned the variety of reasons of fold formation and the necessity that in each concrete case the local causes of such a phenomenon should be investigated. He considered fold formation as a reaction of layered plastic strata to the differential vertical movements of the underlying blocks of the Earth's crust. G. D. Azhgirey, Moscow State University (Moskovskiy Gosadarstvennyy Universitet) drew attention to the necessity of using extensively geological methods for detailed study of the long term history of formation of concrete structural elements of the Earth's crust. P. N. Kropotkina, Institute of Geological Sciences (Institut Geologicheskikh Nauk AN SSSR) dealt with compression and stretching in the Earth's crust and possibilities of studying these phenomena. N. I. Nikolayev, Moscow Geological-Prospecting Institute Card 12/18 (Moskovskiy Geologo-Razvedochnyy Institut) considered the methods of studying the mechanism of formation of those

49-7-13/14

The following physicists dealt with the problem of modelling the tectonic phenomena: L. M. Kachanov, Ye. I. Edel'shteyn, G. V. Vinogradov, G. N. Kurznetsov, M. P. Volarovich, A. V. Stepanov and also the geologists F. I. Vol'fson, V. A. Aprodov, N. I. Borodayevskiy, Yu. S. Shikhin. İt was mentioned that the fundamental difficulties in developing modelling techniques and defining more accurately the conditions of analogy are due to the inadequate knowledge of the physical and mechanical properties of rocks and that much attention should be paid in the near future to improving the theory and methods of modelling. The geologists mentioned that from the practical point of view the experiments with non-uniform models of sections of the ore fields are of greatest interest. In the resolution of the conference it was mentioned that it is possible in principle to simulate on models tectonic phenomena and that the work carried out in this field by the Geodynamics Section of the Institute of Physics of the Earth is promising.

Card 11/18

(Note: Up to this point this is a complete translation except for the initial introductory paragraph).

Conference on tectonophysics. (Cont.)

49-7-13/14

in benzyl alcohol and it was proved that this plastic, optically active material is suitable for modelling tectonic processes. New instruments were demonstrated which were recommended for investigating physical properties of the materials of the models.

N. V. Mikhaylov, Moscow Scientific Research Institute on Building (Moskovskiy Nauchno-Issledovatel'skiy Institut Po Stroitel'stvy) devoted his paper to investigating the physical and mechanical properties of those materials which are equivalent to rocks from the point of view of modellin $\widehat{\epsilon}$ tectonic phenomena. For materials with crystallisation and strong, "high structured" coagulation structures. he recommended determining of the curves of the kinetics of increase of the deformation with time when stressed with a constant tangential stress and the drop in deformation after relieving the stress. Materials with low strength coagulation structures should be studied by recording the changes in tangential stress for a given constant deformation speed of the specimen. He described a new instrument, the electron-selsyn elastoviscosimeter which he designed and some new methods of determining the coefficient of viscosity of the material.

Card 10/18

49-7-13/14

Utilisation of these equations corresponds most closely to the results of laboratory investigations of rocks. As a result of special investigations by means of new instruments it was found that a number of materials possess the physicomechanical properties which should exist on the basis of analogy conditions in the models. Thus, it was proved that it is not only theoretically conceivable but also practically possible to simulate on models tectonic phenomena. A plastically deforming model from a concentrated solution of ethy, cellulose in benzyl alcohol was demonstrated in which the stress distribution was determined by optical methods. Examples were given of applying the method of simulation on models for verifying theoretically derived physical conditions of folds of longitudinal bending and longitudinal flattening and for elucidating the possible shapes, volumes and relative activities of seismic tremors connected with rises of the Earth's crust due to various causes. D. N. Osokina (Institute of Physics of the Earth) Cave results of work carried out by her and V. P. Pavlov, G. V. Vinogradov and M. V. Gzovskiy; a detailed characteris-

tic was given of the physico-mechanical and optical

properties of the concentrated solutions of etnyl cellulose

Card 9/18

49-7-13/14 Conference on tectonophysics. (Cont.) L. S. Eygenson, Moscow Power Institute (Moskovskiy Energeticheskiy Institut), dealt with the general principles of simulating, on models, of physical processes. For materialising similarity of phenomena in models and in nature it is necessary and sufficient to fulfil conditions which ensure identity for the model and for the natural object of the dimensionless solution of dimensionless The author equations describing the studied process. emphasized that this method can be successfully applied also in cases in which it is not possible to comply with all the theoretically derived conditions of analogy but only with the main conditions of analogy. M. V. Gzovskiy (Institute of Physics of the Earth, Ac.Sc., USSR, gave a theoretical justification of new methods and certain results of simulating on models of tectonic processes. On the basis of conceptions elucidated in previous papers, the conditions of analogy were determined by analysing those equations which are widely used in physico-chemical mechanics which describe the development of deformations (taking into consideration the dependence of the viscosity on the stresses) and fracture (taking into consideration its dependence on the duration of the action of the stresses).

8/18

49-7-13/14 Conference on tectenophysics. (Cont.) was drawn to the development with time of the process of disruption and to transition from type III to bype II an type I disruptions. He considered it accessory to distinguish two stages of disruption, one caused by evolution over a long priod and the other of the upontaneous avalanche type which leads to the Thick for incof the According to the author, change-over to the second stage is determined not only by the properties of the material but also by the discusions and the shape of the body, the stress state in the non-discopted part of its cross section and also the inertia, potential energy of the elastic deformation and the clasticity (rigidity) of those bodies which transmit the forces to the body being fractured. All these factors influence the accuitude of the stresses acting in the field of disruption during the second stage. The author proposed that it should also in investigated whether the stren, the and the acture of earthquakes do not depend on the density of the solution energy of electic deformation in the hypocentre of the premor and whether the elastic properties of the rocks and the dimensions of the tremor do not effect the smount of earthquite energy. Card 7/18

49-7-13/14 Conference on vectonophysics. (Cont.) since this permits determination of all the fundamental characteristics of deformation and strength properties of Ya. B. Fridman, Moscow Engineering-Physical Institute the material. (Moskovskiy Inzhenerno-Fizicheskiy Institut), emphasized the importance of clear determination of the local nature of disruption of rocks. He proposed classification as follows: disruption of the III-type (sub-microscopic fractures of a length of several hundred times the parameters of the crystal lattice, i.e. tenths of a micron; type II disruptions (microscopic disruptions of tenths and hundredths of a mm, i.e. commensurate with the dimensions of the grains composing the polycrystelline material, particularly the rock); type I disruptions (macroscopic disruptions, the length of which is larger by several orders of magnitude than the dimensions of the structural elements of the material, the rock grains, and can be large enough for disrupting completely the investigated specimen or budy. It was pointed out that large tectonic fractures of a size of several orders of magnitude larger than the thickness of the individual crack layers of uniform composition should be considered as a disruption of a special type. Card 6/18

49-7-13/14 Conference on tectonophysics. (Cont.) development of tectonophysics, it is important to develop methods of studying the plastic and strength properties of non-uniform layers of rocks under their natural conditions. New conceptions on the general relations of deformation and disruption of various solid and liquid bodies which also extend to rocks were reported in the papers of P. A. Rebinder and Ya. B. Fridman. P. A. Rebinder, Institute of Physical Chemistry, Ac.Sc., USSR (Institut Fizicheskoy Khimii AN SSSR) dealt with the general dependence of the toughness (viscosity) of materials on the magnitude of their tangential stresses and on the types of the secondary structures of various bodies determining the deformation and the strength properties of the He directed attention to the existence of four types of secondary structures in rocks, namely: dense crystalline (eruptive) rocks; loose crystalline rocks and particularly sulphates, carbonates and chlorides of chemical origin; condensation rocks (opal, cements of sedimentary rocks); coagulations of various densities (clay rocks and soils). The importance was emphasized of measurements of the kinetics of the development of deformation and disruption of rocks as a result of long duration effects of constant stresses, Card 5/18

49-7-13/14

the dependence of the physico-mechanical properties of rocks on their lithological and petrographic properties. He has shown that the properties of the rock are influenced appreciably by their porosity, grain size, mineralogical composition and the character and the composition of the binding material. In the two papers a number of problems were discussed relating to the technique and tasks of further investigations. These were also dealt with in papers concerning other subjects and in a number of contributions to the discussions (P. A. Rebinder, Ya. B. Fridman, G. N. Kuznetsov, N. V. Mikhaylov, A. V. Stepanov, N. I. Borodayevskiy, I. V. Popov, M. V. Gzovskiy) and at meetings of groups of specialists who were the most interested in developing a given direction of investigations. A general opinion became crystallised on the necessity of paying particular attention to processes of deformation and disruption of rocks during various stress states and temperatures.

A. V. Stepanov, Physico-Technical Institute, Ac.Sc. U.S.S.R. (Fiziko-Tekhnicheskiy Institut AN SSSR) reported on the study of the physico-mechanical properties of non-uniform and anisotropic media. It was pointed out that for further

Card 4/18

49-7-13/14

engineering geology, analysis of the microstructure of rocks, of solid body physics, of physico-chemical mechanics and of the theory and methods of modelling physical ohenomens and tectonic processes. Fifty-five contributions were made in the discussions. Such a detailed evaluation of problems of tectonophysics by a large number of geologists, Geophysicists, physicists and physical chemists has never taken place, neither in the U.S.S.R. nor abroad. According to the general opinion of the delegates, the conference was extremely fruitful.

Much attention was paid to the study of the mechanical

properties of rocks. M. P. Volarovich (Institute of Physics of the Earth Ac.Sc., U.S.S.R.) reported on modern methods and results of the study of the physical and mechanical properties of rocks in the case of various pressures from all sides. The dependence of the modulus of elasticity of rocks of the stresses in them was characterized and the results were given of experiments indicating the possibility of disruption of an explosive nature of various sedimentary and eruptive rocks. 3. V. Zalesskiy and Yu. A. Rozmaov, fastitute of Geology of Ore Deposits Ac.Sc. U.S.S.R. (Institut Geologii Mesterozhdenly Poleznykh Iskopayenykh AR SSSR) devoted his paper to

Card 3/18

49-7-13/14

working in various directions of tectonophysics and neighbouring problems of physics of tectonics. conference was held at the Institute of Physics of the Earth, Ac.Sc. U.S.S.R. in Moscow between January 29 and February 5, 1957 with the participation of about 496 people representing 121 scientific and executive organizations in Moscow, Leningrad, Kiev, Lvov, Dnepropetrovsk, Voronesh, Novocherkassk, Saratov, Kazan, Krasnodar, Baku, Toilisi, Yerevan, Tashkent, Alma-Ata, Frunze, Tomsk, Omsk, Irkutsk, Magadan and other towns. The greatest number of people were representatives from the establishments of the Ac. 3:. of the U.S.S.R. and other republics, the Ministry of Geology and Conservation of Mineral Resources (Ministerstvo Geologii i Okhrany Nedr SSSR), the Ministry of Non-Ferrous Metallurgy (Ministerstvo Tsvetnoy Metallurgii SSSR) and the Ministry of Higher Education (Ministerstvo Vysshego Obrazovaniya SSSR). The conference was also attended by specialists from China and Czechoslovakia who were at the Twenty-nine detailed papers were read by time in Moscow. specialists on physico-mechanical properties of rocks, on Seological conditions of formation of folds and fractures in the Earth's crust, the structure of ore and coal deposits,

Card 2/18

GROWAIY, M.V.

AUTHOR: Gzovskiy, M. V.

49-7-13/14

TITLE: Conference on tectonophysics. (Soveshchaniye po tektonofizike)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya,

1957, No.7, pp.959-965 (USSR)

ABSTRACT: On a small scale, tectonophysical investigations have been carried out for a long time in the U.S.A. and France. During the last two decades rapid developments have been made in this field in the U.S.S.R., China and Czechoslovakia. Since there has been no cooperation between the scientific organizations and the individual scientists working in the Soviet Union in the field of tectonophysics, there has also been no adequate coordination and there has been a great divergence both in the programme of investigations and in the interpretation of factual data. The Institute of Physics of the Earth of the Ac.Sc. USSR (Institut Fiziki Zemli AN SSSR) has organised the first All Union conference on tectonophysics, which had the following aims: to formulate more precisely the tasks of the tectonophysical investigations; to elucidate the problems which are of greatest interest from the point of view of applied geology; to outline the most promising methods of tectonophysical investigations to improve the relations between individual research workers

Card 1/18

Tectono-physical justification of geological seismicity criteria. II. (Cont.)

necessary to determine the contours of the assumed regions of maxima of tangential stresses, to evaluate approximately by using eq.(5) the relative magnitude of the maximum tangential stresses acting inside the maxima zones and to indicate the genetic types and the maximum dimensions of the fractures which develop and can be anticipated in these regions. The seismostatic data should be compared with: the magnitude of the deformation structural elements of the Earth s crust and the tectonic fracture associated with them; the gradients of the average speed of recent tectonic movements of the Earth's crust; the history and direction of the development of structural elements of the Earth's crust; the types and periods of tectonic fractures associated with certain structural elements of the crust which can either be observed on the surface or can be assumed existing at depths. It is necessary to intensify investigations relating to the mechanical properties of rocks and their dependence on pressure from all sides, temperature and duration of stress application. It is necessary to study the mechanism of formation of tectonic fractures and the influence of fractures on the stress state in their neighbourhood for

Card 3/4

AUTHOR: Gzovskiy, M.V.

49-3-1/16

Tectono-physical justification of Leological seisnicity criteria. II. (Tektonofizicheskoye obosnovaniye geologicheskikh kriteriyev seysmichnosti. II) TITLE:

PERIODICAL: "Izvestiya Akademii Nauk, Sei ya Geofizicheskaya" (Bulletin of the Ac.Sc., Geophysics Series), 1957, No.3, pp.273-283 (U.S.S.R.)

ABSTRACT: Tectono-physical investigations relating to the forecasting of earthquakes consist in studying natural deformations and fractures in the Earth's crust and appropriate model studies aimed at elucidating the relations governing the distribution of those stresses which are linked with changes in the structure of the Earth's crust and bring about fractures and earthquakes. The necessity of carrying out such investigations has been expounded by the author in the first part of this paper (same journal, No.2, pp.141-160) in which the physical meaning of geological criteria of seismicity was determined and the importance was pointed out of developing a hypothesis which links the energy and the repetition of earthquakes in time with geological In this paper such a hypothesis is seismicity criteria. Card 1/4

presented by the author and is expressed mathematically by

42

TITLE:

Tectonophysical explanation of the geological criteria of seismicity. Part I. (Tektonofizicheskoe obosnovanie geologicheskikh kriteriyev seysmichnosti. I).

In regions which have not been adequately studied, it will be advisable to carry out regional geological investigations together with seismo-statistical investigations so as to detect within the shortest possible time regions for which the largest average speed gradients of new and present-day vertical movements of the Earth's crust take place and where earthquakes did already occur; in these regions the existence of increased tangential stresses is most likely and these regions should be considered as the most dangerous from the point of view of seismicity. In regions which have been studied more extensively in the past, it is necessary to carry out tectonophysical field work and investigations on models, with the aim of arriving at a hypothesis on the most probable distribution of the maxima, their internal structure and trend of development.

Card 3/4

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42

AUTHOR:

Gzovskiy, M. V.

TITLE:

Tectonophysical explanation of the geological criteria of seismicity. Part I. (Tektonofizicheskoe obosnovande geologicheskikh kriteriyev seysmichnosti. I).

PERIODICAL:

Izvestiya Akademii Nauk, Ser. Geofizicheskaya, 1957, No.2, pp. 141-160 (U.S.S.R.)

ABSTRACT:

The physics of geological criteria of seismicity are described and their importance is pointed out in complex geological-geophysical forecasting of earthquakes. In this paper the author is concerned only with the tectonophysical point of view of considering the geological criteria of seismicity. He defines as the geological criteria of seismicity of a given region the geological characteristics of the degree of seismic danger characterised by the maximum force of future seismic tremors and their anticipated recurrence as a function of time.

Card 1/4

be necessary to change over to a more accurate forecasting based on the knowledge of the present state of the depths of the Earth and on the tendency of

development of deformations and stresses.

Card 2/4

GZOVSKIY, M. V. "The Theoretical Basis, New Methods, and Results of Modeling Tectonic Processes," paper presented at the First All-Union Conference on Tectonophysics, Moscow, 29 January through 5 February 1957. Institute of Physics of the Earth, Academy of Sciences Sum 1563

GZOVSKIY, M. V.

"On the Characteristics of the Physico-Mechanical and Optical Properties of Concentrated Solutions of Ethyl Cellulose and Benzyl Alcohol," D. N. Osokina in collaboration with V. P. Pavlov, G. V. Vinogradov, and M. V. Gzovskiy (reported on the usefulness of this plastic, optically active material for the modeling of tectonic processes,

paper presented at the First All-Union Conference on Tectonophysics, Moscow, 29 January through 5 February 1957.

Inst. of Physics of the Earth, Acad. Sci. USSR

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	Tesisy dokladov na II General'noy sasembleye Neuhdonarodnogo geodepicheskogo i geofizicheskogo soyuza. Neuhdunarodnaya assotslatsiya seysmologii i fiziki nede zemli (Abstracts of Reports Submitted to the II General Assembly of the International Union of Geodesy and Geophysics. The International Association of Seismology and Physics of the Earth's Interior) Noscow, 1977. 102 p. /Parallel texts in Russian and English/ 1,500 cupies printed.
	No additional contributors mentioned
	FURFORE: This booklet is intended for geophysicists, especially those specializing in seismology.
	COVERAGE: This collection of articles deals with the structure and composition of the Karth and phenomena related thereto. The majority of the articles concern studies of earthquakes and selmmis paves. Other articles cover the structure of the Karth's crust and accutation roots; the elastic properties of rooks at high pressures; the piezoelectric effect of rocks and the method of modelling in testonophysics. The collection also contains articles on the little of the state of the state of the state of the collection also contains articles on the little of the state of the
	Volarovich, M.P. and H.I. Farkhomenko. Fieoscelectric Effect of Rocks 29
	Veyteman, P.S., I. P. Kosminskayn, and Yu. V. Ritnichemko. New Bridence on the Structure of the Earth's Crust and Mountain Roots in Central Asia From Seismic Depth Sounding Data
	Osovskiy, N.V. Nethod of Modelling in Tectomophysics
	Gorabkov, G.P. Seismic Intensity Regions of Asia 42
	Davydov, B.I. Physical Properties of Solid Rodies at Righ Pressures 43
	Maylis-Borok, V.I. Investigation of Earthquake Mechanism 46
	Keylis-Brok, V.I. Dymenic Methods of Investigating the Earth's Creet and Internal Structure (Theory, Electronia Computations and Practical Tests)  51
	Karus, Te.T. Absorption of Elastic Veves in Rocks 55
	Card 3/5